

REMARKS

A. Status of the Pending Claims and Explanation of the Amendments

Claims 30 – 35 are pending in this application. Claim 34 was rejected under 35 U.S.C. §112(¶2) for being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. The Examiner asserts that there is insufficient antecedent basis for the phrase “and biodegradable layer (3)” and that the phrase “based on same thickness, respectively” is unclear and confusing. Amended claim 34 no longer recites these phrases and instead now recites, *inter alia*, “...wherein tear strength in said biodegradable laminated film is higher than that of a film of polycaprolactone or a film of either of said other two layers having the same thickness as the biodegradable laminated film.” Applicants respectfully submit that amended claim 34 is definite and request reconsideration and withdrawal of the rejection of claim 34 under 35 U.S.C. §112(¶2).

Claims 34 and 35, which are multiple dependent claims, were also amended so that they no longer depend from multiple dependent claims, placing them in accordance with 35 U.S.C. §112(¶5)

Claims 30-33 and 35 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,096,431 to Matsudaira et al. (“Matsudaira”). The Examiner states that Matsudaira discloses a biodegradable laminate comprising two or more layers of different biodegradable polymers. The Examiner believes that “it would have been obvious to a person of ordinary skill in the art at the time the invention was made to utilize a conventional method of forming multilayer films such as coextrusion as indicated in claim 33 to form the multilayer base material that is disclosed in Matsudaira.” [Office Action at page 4, lines 3-6]. Moreover, the

Examiner states that "it is well known in the art to use biodegradable articles, such as the containers or trays as disclosed in Matsudaira, in agricultural or gardening applications as indicated in claim 35." [Office Action at page 4, lines 6-8].

Independent claim 30 has been amended to recite "A biodegradable laminated film comprising a polycaprolactone layer with at least two other biodegradable resin layers, in which said polycaprolactone layer is sandwiched between two other biodegradable resin layers." Newly amended dependent claims 31-33 now recite, *inter alia*, "...said other two biodegradable resin layers." Support for these amendments can be found generally throughout the specification and in particular in Examples VIII-1 to VIII-5, as well as on page 32, lines 13-22 and from page 106 line 20 to page 114, line 2. No new matter has been added by entering these amendments.

B. Matsudaira Does Not Teach Applicants' Claimed Invention

Applicants respectfully traverse the rejection of claims 30-33, and 35 under 35 U.S.C. §103(a). Matsudaira does not teach "A biodegradable laminated film comprising a polycaprolactone layer with at least two other biodegradable resin layers, in which said polycaprolactone layer is sandwiched between two other biodegradable resin layers", as recited in Applicants' amended claim 30.

Instead, Matsudaira is directed to biodegradable cards. The card employs a biaxially oriented sheet of a thermoplastic resin composition as a supporting substrate. The thermoplastic resin composition is "mainly composed of a lactic acid polymer." [col. 2, lines 43-44]. To improve the biodegradability of the card, "it is preferable to add to the thermoplastic resin composition a resin having a biodegradability superior to the lactic acid polymer." [col. 3, line 66 to col. 4, line 1]. Further, Matsudaira suggests that other biodegradable resins may be laminated

to the lactic acid-based supporting substrate “for improving the biodegradability [of the card].” [col. 4, line 11, and Figure 3]. This lamination process coats both sides of the card with the “modifying biodegradable resin”, as shown in Figure 3.

However, none of the laminated films of Matsudaira have a polycaprolactone layer sandwiched between two other biodegradable resin layers as recited in Applicants’ newly amended independent claim 30.

Furthermore, Matsudaira does not teach films that have a higher tear strength than single layer films of the same thickness that are composed of a material used as a layer in the biodegradable laminated film, as recited in claim 34.

Because Matsudaira does not teach or suggest every element of Applicants’ invention, the rejection under 35 U.S.C. §103(a) should be withdrawn. MPEP §2143.03.

C. Matsudaira Teaches Away From Applicants’ Invention

Applicants further assert that Matsudaira teaches away from Applicants’ invention. More specifically, although the supporting substrate of Matsudaira is “mainly composed of a lactic acid polymer” [col. 2, lines 43-44], Matsudaira acknowledges that the biodegradability of lactic acid may be slow [col. 3, line 60]. To circumvent this problem, Matsudaira teaches that a “modifying biodegradable resin” having a biodegradability that is superior to the lactic acid polymer can be used to coat both sides of the lactic acid-based card [Fig. 3 and col., lines 11-24]. This outside coating enhances the biodegradation of the card.

In order for these “modifying biodegradable resins” to enhance biodegradability, they must be at the outermost layer of a multilayer film so that organisms that take part in the biodegradation process can have access to them. Accordingly, even though Matsudaira teaches

that one possible "modifying biodegradable resin" is polycaprolactone [col. 5, line 46], there would be no motivation to sandwich the polycaprolactone between two other biodegradable resins to arrive at Applicants' invention. This is because such a structure would not take advantage of the enhanced biodegradability of the polycaprolactone, as taught by Matsudaira.

Dependent claims 31-33 and 35 are patentably distinct over Matsudaira for at least these reasons. Accordingly, they are in condition for allowance. Reconsideration and withdrawal of the rejections under 35 U.S.C. §103(a) are respectfully requested.

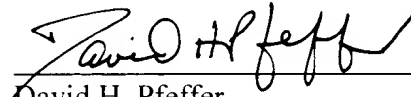
CONCLUSION

For the foregoing reasons, it is respectfully submitted that the pending claims are in condition for allowance. In the event that a telephone conference would facilitate examination of this application in any way, the Examiner is invited to contact the undersigned at the number provided.

Respectfully submitted,
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Dated: September 25, 2002

By: _____


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APPENDIX

30. A biodegradable laminated film comprising [laminating a biodegradable resin layer (1) with a biodegradable resin layer (2) which is different from the biodegradable layer (1), in which total of the layers is composed of at least two layers] a polycaprolactone layer with at least two other biodegradable resin layers, in which said polycaprolactone layer is sandwiched between two other biodegradable resin layers.
31. A biodegradable laminated film as claimed in claim 30, wherein each of said [biodegradable resin layer (1) or said biodegradable resin layer (2) is composed of at least one resin] other two biodegradable resin layers are selected from the group consisting of an aliphatic polyester resin, [a polycaprolactone,] a cellulose ester, a polypeptide, a polyvinylalcohol, a polyamide, and a polyamide ester.
32. A biodegradable laminated film as claimed in [any one of claims 30-31] claim 30 or 31, wherein said [biodegradable resin layer (1) is composed of a polycaprolactone, and said biodegradable resin layer (2) is composed of at least one resin] other two biodegradable resin layers are composed of resins selected from the group consisting of a polylactic acid-based polyester, a polyglycol acid-based polyester, a succinic acid-1,4-butanediol polyester, a succinic acid-ethylene glycol polyester, a succinic acid/adipic acid-1,4-butanediol copolyester and an isocyanate modified polyester thereof.
33. A biodegradable laminated film as claimed in [any one of claims 30-31] claim 30 or 31.

wherein said [biodegradable layer resin layer (1) and said biodegradable resin layer (2) comprise extrusion] polycaprolactone layer and said other two layers are laminated by coextrusion.

34. A biodegradable laminated film as claimed in [any one of claims 30-33] claims 30 or 31, wherein tear strength in said biodegradable laminated film is higher than [in a single layer film composed of said biodegradable layer (1), said biodegradable resin layer (2), and biodegradable resin layer (3)] that of a film of polycaprolactone or a film of either of said two layers having the same thickness as the biodegradable laminated film.
35. A biodegradable film for agriculture which comprises a biodegradable laminated film as claimed in [any one of claims 30-34] claim 30 or 31.